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Our Ref.: Case E-2437/04

**RE: PCT Application No. PCT/EP2004/052559 filed on October 15, 2004 in the name of Dayco Europe S.r.l. con Unico Socio**

## **A TOOTHED BELT**

With reference to the application in object for which a demand for International Preliminary Examination has been filed, please find herewith attached the Applicant's comments on the written opinion of the Examiner under Art 34 PCT.

As regards the prior art cited as anticipating the originally filed claim 1, the Applicant does not agree with the consideration of the Examiner, i.e. the fact that the arguments of the letter of reply cannot be shared by the Examining division because the evaluation of claim 1 in respect to Art. 33(2) PCT can only be carried out on what is constituting the definition of the subject matter of claim 1.

The arguments of the previous communication are exactly relevant to the differences between actual claim 1 and the characteristic shown in D1, precisely:

### **Novelty**

Claim 1 recites:

1. a toothed belt (1), comprising a body (2) and a plurality of teeth (4); said teeth being coated with a fabric (5);
2. said fabric (5) being **coated on the outside with a resistant LAYER (8)**;
3. said resistant layer (8) comprising
  - 3a. a fluorinated plastomer
  - 3b. an elastomeric material

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### 3c. and a vulcanizing agent

4. said fluorinated plastomer being present in said **resistant layer (8)** in an amount higher than that of said elastomeric material
5. said toothed belt being characterized in that said fluorinated plastomer is formed mainly by particles of average size smaller than 10  $\mu\text{m}$ ,
6. and in that said resistant layer (8) is made to adhere directly to said fabric.

According to the Webster dictionary layer means "**one thickness, course, or fold laid or lying over or under another**".

This definition perfectly applies to the actual invention which claims a resistant layer **outside** the fabric and perfectly divided from it. See also the example of table 3 of the present invention in which "Said resistant layer has a thickness of 0.037 mm"

On the contrary the composition of D1 it is clearly indicated as an RFL composition, i.e. a **liquid treatment** that permeates the fabric.

Please note that the D1 treatment is liquid because comprises also resorcin, formaldehyde and a lot of **water** (see ex. C5 of table 3): an aqueous dispersion (see paragraph 31).

The layer of the present invention does not comprise water! And a solution made of more than 80% of water can not form a layer "outside of a fabric" as requested by actual claim 1.

The applicant is obviously convinced that **a liquid treatment can not form a layer**, and on the contrary it permeates the fibres of the fabric and thus it is totally different from a distinct layer, but it is respectfully asked to the Examiners to clarify if he deems that the liquid treatment of D1 may form a layer taking also into account the fact that the supposed resistant layer of D1 has no number and it is not identifiable in the figures.

Contrary to the statement that the RFL liquid treatment of D1, i.e. the mixture, may constitute a layer and as already noted in our previous communication it is said in paragraph 12 of D1 that: "The fibers in the fiber layer (the fabric of the preset invention) may be surrounded by the mixture between the first and second surfaces."

Therefore present claim 1 differs from D1 firstly because it claims a distinct **layer** and secondly because this layer is placed on the **outside** of the fabric.

Summarizing the above because of the different chemical compositions

D1 LIQUID

Present invention SOLID

Therefore **claim 1 is indubitably new** in view of D1 because D1 does not describes a distinct layer on the outside of the fabric.

### Novelty and clarity

Characteristic 3a of the claim 1 of the present invention claims also a **vulcanizing agent** (for instance a peroxide) which it can not be found in D1.

The Examiner deems that this (Item VIII) appears to be a raw material feature rather than a resistant layer feature. The applicant kindly requests the Examiner to clarify why a layer may not comprise a vulcanizing agent

As it is described in the text at page 8 line 34 "The resistant layer 8 further comprises a peroxide as vulcanizing agent. The peroxide is added normally in an amount comprised between 1 and 15 parts by weight per 100 parts of elastomeric material. The resistant layer 8 is applied directly on the fabric 5, preferably via spreading on the fabric 5 itself. Next the toothed belt is vulcanized".

Please, note that the Application clarifies that the peroxide is a chemical substance contained in the resistant layer and that improves the vulcanization, but the Applicant is open to any suggestion from the Examining division on how to modify claim 1 to render clear the fact that the resistant layer must be formed at least by three different substances, i.e. a plastomer, an elastomer and a vulcanizing agent.

Therefore claim 1 is also **new in view of the treatment described in D2 because the treatment of D2 does not comprise a vulcanizing agent.**

### **Inventiveness**

As regard the inventiveness, please, note the following:

The problem at the base of D1 it is already explained in the description of the patent under examination as explained from page 1 line 35 to page 2 line 15: "The fabric is normally treated with **an adhesive**, for example resorcinol and formaldehyde lattice (RFL of D1) to increase adherence between the body and the fabric itself. There are moreover employed a number of methods (enclosed the one of D1) **for increasing resistance to wear of drive belts by modifying the structure of the coating fabric or performing different treatments on the fabric, for example, treatments of the fabric with halogenated polymers (i.e. also PTFE).** Said treatments do not, however, lead to any great increase in resistance to wear in so far as the coating fabric of the toothed belt, in use, constitutes in any case the working surface (as in D1)".

As it is further explained in the description said treatments, as the treatment of D 1, "do not, however, lead to any great increase in **resistance to wear** in so far as the coating fabric of the toothed belt, in use, constitutes in any case the working surface."

This problem has been resolved by EP1157813, i.e. D2 which is the closest prior art and that describes a resistant layer similar to the one used in the present invention thus it results that: "The use of said resistant layer has enabled excellent results in terms of increase in resistance to wear to be obtained"

The problem at the base of the present invention is that "The resistant layer of D2 is formed via the use of **a fluorinated plastomer comprising particles which have an average size of 20  $\mu\text{m}$  or more and are in the form of agglomerates.** Consequently, said agglomerates have sizes such as **to entail a difficult mixability** in solution with the elastomer. The agglomerates are hence also present in the final resistant layer that is consequently non-homogeneous, and said lack of homogeneity can generate a high level of noise. This problem has been solved according claim 1 of the present using a fluorinated plastomer formed mainly by particles of average size smaller than 10  $\mu\text{m}$ , and in that said resistant layer (8) is made to adhere directly to said fabric."

Thus **claim 1 is inventive over D2** which is the closest prior art already acknowledged in the text according to Rule 5.1(a)(ii) PCT.

The skilled in the art would have **not considered D1 which describes a liquid composition** (an aqueous dispersion see paragraph 31) to solve the problem of the mixability of the PTFE in solution with the elastomer and thus **claim 1 is also inventive over the combination of D1 and D2.**

Therefore also claims 2 to 6 are new and inventive, because are dependant from a new and inventive claim 1.

Also claim 7 is new and inventive over the cited prior art because it is new and inventive to apply by spreading the distinct and separate layer of claim 1 above the fabric of the toothed belt. Also in this case the closest prior art in this case is represented by D2 in

which the layer was applied by spraying is formed separately and coupled to the fabric by means of calender (paragraph 32 of D2) .

On the grounds of what explained the Applicant deems that the claims are new and not obvious over the prior art applied and are well defined in the subject matter for which the protection is sought.

In view of the above a favourable re-examination of the application in object is respectfully requested.

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Yours very truly

  
Francesco Fiussello